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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,032	03/30/2004	Hirotaka Sato	900-494	1422

23117 7590 11/27/2009
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EXAMINER	
TRINH, THANH TRUC	
ART UNIT	PAPER NUMBER
1795	
MAIL DATE	DELIVERY MODE
11/27/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/812,032	SATO ET AL.	
	Examiner	Art Unit	
	THANH-TRUC TRINH	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3 and 6-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3 and 6-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 3, 6-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As amended, independent claim 6 recites the limitations "the projection is located at a higher level than the side walls of the drain channel" in line 17 and "the side walls of the drain channel of the first side frame portion and the projection of the second side frame portion are provided with a difference in height between the side walls and the projection" in lines 22-24. It is unclear as to whether these two limitations are the same or different. It appears that a same limitation is repeated twice.

Claim 6 also claims "a solar cell unit comprising" in the preamble. Claim 6 also recites "two adjacent solar cell units" in lines 24 and 28, and "a plurality of solar cell units in line 26. It is unclear as to whether "two adjacent solar cell units" and "a plurality of solar cell units" are being claimed. It is also not clear how a single cell unit can comprises "two adjacent solar cell units" or "a plurality of solar cell units".

Claim 6 further recites the limitation "the other solar unit" in line 25. There is insufficient antecedent basis for this limitation in the claim. It is suggested to be changed to "the other solar cell unit".

Claims 3, 7-9 are rejected on the same ground as claim 6.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 3, 6-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tourneux (US Patent 4336413) in view of Bonn (DE 19521098)

Regarding claim 6, as seen in Figures 1,2 and 6A, Tourneux teaches a solar cell unit comprising a solar cell module (including solar cells 11 and laminating 12 as seen in Figure 1); a module frame (including frame pieces 21,22, 23 and 24) provided around the solar cell module as supporting the solar cell module for mounting the solar cell unit on an oblique roof (See col. 1 line 4 to col. 2 line 52) having a plane surface (e.g. surface of the plane of the roof, see col. 2 lines 1-9, col. col. 4 lines 44-59); a drain channel (formed by back portion 27, wing 29 and back side of U-shaped portion 25) provided along an edge (or along the side of framing piece 22) of the module frame outside the module frame, wherein the solar cell module has a rectangular shape and the module frame includes two horizontal frame portions (framing pieces 24 and 23 as seen in Figure 1) provided parallel to each other to be disposed on a roof ridge side and on an eave side, respectively, when the solar cell unit is mounted on the oblique roof, and a first side frame portion (frame piece 22 in Figure 2, or frame piece 61 in Figure 6A) and a second side frame portion (frame piece 21 in Figure 2, or frame piece 60 in Figure 6A) respectively extending from opposite ends of one of the horizontal frame portions to opposite ends of one of the horizontal frame portions to opposite ends of the other horizontal frame portion; the drain channel is provided along an outer side of the first side frame portion and having a channel bottom (back portion 27) and opposite side walls (wing 29 and back side of U- shaped portion 25); the second side frame portion has a planar projection (horizontal back portion of frame piece 21) projecting

horizontally outward from an entire upper edge of the second side frame portion; and the projection is located at a higher level than the side walls of the drain channel. Tourneux discloses the side walls (wings 29 and back side of U-shaped portion 25) of the drain channel (e.g. formed by the back portion 27, wing 29 and back side of U-shaped portion 25) of the first side frame portion (e.g. frame piece 22 as seen in Figure 2) and the projection (e.g. horizontal back portion of frame piece 21) of the second side frame portion (e.g. frame piece 21) are provided with a difference in height between the side walls and the projection (e.g. as the projection is located at a higher level than the side walls of the drain channel) to allow the drain channel of one of two adjacent solar cell units to project under the second side frame portion of the other solar cell unit (see Figure 2, as the drain channel of one of the two adjacent solar cell units represented by dashed lines 220) when a plurality of the solar cell units (e.g. two or more solar cell units) are mounted on the plane surface of the oblique roof in parallel to a roof ridge or an eave on the oblique roof (see Figures 2, 4, 5A, 6A) so that the first side frame portion (e.g. frame piece 22 or 220 in Figure 2) of one of two adjacent solar cell units and the second frame portion (e.g. frame piece 21 in Figure 2) of the other solar cell unit are opposed to each other with a gap (e.g. any spaces between the frame piece 21 and 220 as seen in Figure 2) being defined therebetween (see Figure 2), and the drain channel (formed by the back portion 27, wing 29 and back side of U-shape portion 25) provided along the first side frame portion of the one unit (see Figures 1-2) is located below the gap (see Figure 2).

The difference between Tourneux and instant claims is the requirement of the width of the drain channel is greater than the width of the projection, a barrier plate which closes one end of the drain channel located on the roof ridge side.

Bonn teaches a barrier plate (or stop edge 5) which closes one end of the drain channel located on the roof ridge side. (See Abstract and the Figure on the front pate).

It would have been obvious to one skilled in the art at the time the invention was made to modify the solar cell unit of Tourneux by incorporating a barrier plate (or stop edge) as taught by Bonn, because Bonn teaches that it would block off or stop wawter running backward (See the Abstract of Bonn). Furthermore, Tourneux teaches the drain channel (including bottom portion 27, wing 29 and the back side of U-shape portion 25) is used to direct rain water (See Figures 1-2, col. 3 line 11 to col. 4 line 43, claim 1). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that the width of the drain channel can be greater than the projection because the relative dimensions would not perform differently than the prior device, the claimed structure was not patentably distinct from the prior art device. In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), the Federal Circuit held that, where the only difference between the prior and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. The choice of how wide the projection relative to the width of the drain channel would not significantly alter the performance of the claimed drain channel.

Regarding claim 3, as seen in Figure 2, Tourneux teaches the drain channel has a rib (28) projecting upward from a bottom of the drain channel and extending longitudinally of the drain channel.

Regarding claim 7, as seen in Figure 2, Tourneux teaches the projection (back section of frame portion 21) has a rib (protrusion at the middle) projecting downward from a rear surface of the projection and extending along the second side frame portion (frame portion 21) for dripping rainwater flowing along the rear surface of the projection. (see arrow 15 in Figure 1, col. 3 lines 24-49)

Regarding claim 9, as seen in Figure 6A, Tourneux further teaches a planar auxiliary projection (65a) projecting horizontally outward form an entire upper edge of the first side frame portion (or frame piece 61).

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tourneux (US Patent 4336413) in view of Bonn (DE 19521098) as applied to claims 3, 6-7 and 9 above, and further in view of Kloke (US Patent 4621472)

Regarding claim 8, Tourneux in view of Bonn teaches a solar cell unit as set forth.

Modified Tourneux does not teach an auxiliary drain channel projecting under the module and extending along an inner side of the first side frame portion.

Kloke teaches a mounting structure to support panel (32) for collecting solar energy (See col. 1 lines 9-54), wherein the structure includes a condensation channels 79 and 80 (or drain channels) projecting from the downwardly extending back frame 81

or 82 under the panel and extending along an inner side of the frame. (See Figure 5, col. 8 lines 8-14)

It would have been obvious to one skilled in the art at the time the invention was made to modify the solar cell unit of modified Tourneux by incorporating an auxiliary drain channel (or condensation channels) projecting under the module and extending along an inner side of the frame as taught by Kloke into the solar cell units of modified Tourneux, because Kloke teaches that the condensation channels are useful in trapping any moisture condensed on the surfaces of the support structure (such as purlins or batten) and of the glass panels. (See col. 8 lines 8-14). Because modified Tourneux teaches the frame pieces can vary in height by extending the back side of the U-shaped portion upwardly or downwardly as seen in Figures 3, 5B, 6B and because Tourneux, Bonn and Kloke are concerned with forming a supporting structure (or framing) for solar energy collecting panels (such as glass panels 32 in Kloke and laminated solar panels 11 or 41, 42 in Tourneux), one would have reasonable expectation of success from the combination.

Response to Arguments

8. Applicant's arguments filed 8/11/2009 have been fully considered but they are not persuasive.

Applicant argues that none of the prior arts teaches or suggests all the claimed limitations. However, the Examiner respectfully disagrees. Tourneux discloses the side walls (wings 29 and back side of U-shaped portion 25) of the drain channel (e.g. formed

by the back portion 27, wing 29 and back side of U-shaped portion 25) of the first side frame portion (e.g. frame piece 22 as seen in Figure 2) and the projection (e.g. horizontal back portion of frame piece 21) of the second side frame portion (e.g. frame piece 21) are provided with a difference in height between the side walls and the projection (e.g. as the projection is located at a higher level than the side walls of the drain channel) to allow the drain channel of one of two adjacent solar cell units to project under the second side frame portion of the other solar cell unit (see Figure 2, as the drain channel of one of the two adjacent solar cell units represented by dashed lines 220) when a plurality of the solar cell units (e.g. two or more solar cell units) are mounted on the plane surface of the oblique roof (e.g. the surface of the plane of the roof) in parallel to a roof ridge or an eave on the oblique roof (see Figures 2, 4, 5A, 6A) so that the first side frame portion (e.g. frame piece 22 or 220 in Figure 2) of one of two adjacent solar cell units and the second frame portion (e.g. frame piece 21 in Figure 2) of the other solar cell unit are opposed to each other with a gap being defined therebetween (see Figure 2), and the drain channel provided along the first side frame portion of the one unit is located below the gap. (see Figures 1-2).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH-TRUC TRINH whose telephone number is (571)272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on 571-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT
11/19/2009

/Basia Ridley/
Supervisory Patent Examiner, Art Unit 1795